

Claims

- 1 1. A method of optimizing the delivery of content data from a web server to a
2 client device, said method comprising:
3 receiving a request for content data from a client device;
4 selecting optional content of the content data responsive to performance
5 characteristics of the requesting client device; and
6 transmitting the selected optional content to the requesting client device.
- 1 2. The method of claim 1 wherein selecting optional content further comprises:
2 selecting one of a plurality of content items responsive to the
3 performance characteristics of the requesting client device.
- 1 3. The method of claim 2 wherein the plurality of content items is ordered with
2 respect to highest and lowest performance characteristics of client devices, and selecting
3 comprises:
4 responsive to a client device having a highest performance characteristic,
5 selecting a first ordered content item.
- 1 4. The method of claim 2 wherein the plurality of content items is ordered with
2 respect to highest and lowest performance characteristics of client devices, and selecting
3 further comprises:
4 responsive to a client device having a highest performance characteristic,
5 selecting a last ordered content item.
- 1 5. The method of claim 3 wherein optimization constraints are assigned to classes
2 of client devices, and each class of client device has different performance
3 characteristics, further comprising:
4 determining the performance characteristics of the requesting client
5 device;
6 determining a class of client device to which the requesting client device
7 belongs responsive to the determined performance characteristics
8 of the requesting client device;

9 assigning the requesting client device an optimization constraint
10 responsive to the determined class of client device to which the
11 requesting client device belongs; and
12 selecting comprises selecting a content item whose order corresponds to
13 the optimization constraint.

1 6. The method of claim 5 further comprising:
2 responsive to an optimization constraint specifying a class of device
3 having a lowest performance characteristic, selecting a content
4 item requiring a least amount of bandwidth to be transmitted.

1 7. The method of claim 5 further comprising:
2 responsive to an optimization constraint specifying a class of device
3 having a lowest performance characteristic, selecting a content
4 item comprising a least amount of data.

1 8. The method of claim 2 wherein optimization constraints are associated with each
2 content item, and the optimization constraints index classes of client devices, wherein
3 each class of client device has different performance characteristics, further comprising:
4 assigning the requesting client device an optimization constraint
5 responsive to the performance characteristics of the requesting
6 client device; and
7 selecting comprises selecting a content item responsive to the assigned
8 optimization constraint.

1 9. The method of claim 8 wherein assigning an optimization constraint responsive
2 to the performance characteristics of the requesting client device further comprises:
3 determining a connection type in use by the client device; and
4 associating an optimization constraint responsive to the connection type
5 of the client device.

1 10. The method of claim 8 wherein assigning an optimization constraint responsive
2 to the performance characteristics of the requesting client device further comprises:

3 determining a web browser in use by the requesting client device; and
4 associating an optimization constraint further comprises:
5 associating an optimization constraint responsive to the web browser in
6 use by the requesting client device.

1 11. The method of claim 8 wherein assigning an optimization constraint responsive
2 to the performance characteristics of the requesting client device further comprises:
3 determining a processor type in use by the requesting client device; and
4 associating an optimization constraint further comprises:
5 associating an optimization constraint responsive to the processor type in
6 use by the requesting client device.

1 12. The method of claim 8 wherein assigning an optimization constraint responsive
2 to the performance characteristics of the requesting client device further comprises:
3 determining an amount of memory in use by the requesting client device;
4 and associating an optimization constraint further comprises:
5 associating an optimization constraint responsive to the amount of
6 memory in use by the requesting client device.

1 13. The method of claim 8 wherein assigning an optimization constraint responsive
2 to the performance characteristics of the requesting client device further comprises:
3 determining a display type in use by the requesting client device; and
4 associating an optimization constraint further comprises:
5 associating an optimization constraint responsive to the display type in
6 use by the requesting client device.

1 14. A system for transmitting content data over a network, comprising:
2 a content server, for receiving a request for content from a client device,
3 selecting optional content of the content data responsive to
4 performance characteristics of the client device, and transmitting
5 the selected optional content to the requesting client device.

1 15. The system of claim 14 further comprising a plurality of client devices, for
2 transmitting requests for content to the content server and receiving content transmitted
3 from the content server, at least one client device having different performance
4 characteristics than at least one other client device.

1 16. The system of claim 14 wherein optimization constraints index classes of client
2 devices based upon performance characteristics and the optional content within a
3 context data is indexed by the optimization constraints, and the content server selects
4 optional content from the context data responsive to assigning an optimization
5 constraint to a requesting client device.

1 17. A method of creating an electronic document forming a collection of content
2 data to permit selective transmission of content data, comprising:
3 creating content data representing alternate versions of content;
4 inserting the content data into the content; and
5 demarcating the content data to indicate to a processor that the content
6 data are selectable.

1 18. The method of claim 17 wherein the content items have different data sizes, and
2 inserting the content items further comprises:
3 ordering the content items with respect to an amount of bandwidth
4 required to transmit the content items.

1 19. The method of claim 17 in a system in which client devices receive the electronic
2 documents for display, and the client devices have different performance characteristics
3 and inserting the content items further comprises:
4 ordering the content items with respect to performance characteristics of
5 client devices.

1 20. A method of delivering a web page comprising:
2 receiving a request for transmission of the web page from a remote
3 device;
4 determining at least one performance characteristic of the remote device;

5 selecting optional content of the web page responsive to the determined
6 at least one performance characteristic; and
7 transmitting the selected optional content to the remote device.

1 21. The method of claim 20 wherein selecting optional content further comprises:
2 selecting one of a plurality of content items responsive to the
3 performance characteristics of the requesting client device.

1 22. The method of claim 21 wherein the plurality of content items is ordered with
2 respect to highest and lowest performance characteristics of client devices, and selecting
3 comprises:
4 responsive to a client device having a highest performance characteristic,
5 selecting a first ordered content item.

1 23. The method of claim 21 wherein the plurality of content items is ordered with
2 respect to highest and lowest performance characteristics of client devices, and selecting
3 further comprises:
4 responsive to a client device having a highest performance characteristic,
5 selecting a last ordered content item.

1 24. The method of claim 22 wherein optimization constraints are assigned to classes
2 of client devices, and each class of client device has different performance
3 characteristics, further comprising:
4 determining the performance characteristics of the requesting client
5 device;
6 determining a class of client device to which the requesting client device
7 belongs responsive to the determined performance characteristics
8 of the requesting client device;
9 assigning the requesting client device an optimization constraint
10 responsive to the determined class of client device to which the
11 requesting client device belongs; and

12 selecting comprises selecting a content item whose order corresponds to
13 the optimization constraint.

1 25. The method of claim 24 further comprising:
2 responsive to an optimization constraint specifying a class of device
3 having a lowest performance characteristic, selecting a content
4 item requiring a least amount of bandwidth to be transmitted.

1 26. The method of claim 24 further comprising:
2 responsive to an optimization constraint specifying a class of device
3 having a lowest performance characteristic, selecting a content
4 item comprising a least amount of data.

1 27. The method of claim 21 wherein optimization constraints are associated with
2 each content item, and the optimization constraints index classes of client devices,
3 wherein each class of client device has different performance characteristics, further
4 comprising:
5 assigning the requesting client device an optimization constraint
6 responsive to the performance characteristics of the requesting
7 client device; and
8 selecting comprises selecting a content item responsive to the assigned
9 optimization constraint.

1 28. The method of claim 27 wherein assigning an optimization constraint responsive
2 to the performance characteristics of the requesting client device further comprises:
3 determining a connection type in use by the client device; and
4 associating an optimization constraint responsive to the connection type
5 of the client device.

1 29. The method of claim 27 wherein assigning an optimization constraint responsive
2 to the performance characteristics of the requesting client device further comprises:
3 determining a web browser in use by the requesting client device; and
4 associating an optimization constraint further comprises:

5 associating an optimization constraint responsive to the web browser in
6 use by the requesting client device.

1 30. A computer-readable medium for use in a system having a web server for
2 storing content data, and which is connected to a plurality of client devices, the
3 computer-readable medium storing instructions which cause the server to:
4 receive a request for content data from a client device;
5 select optional content of the content data responsive to performance
6 characteristics of the requesting client device; and
7 transmit the selected optional content to the client device.

1 31. The computer-readable medium of claim 30 wherein the stored instructions
2 further cause the processor to:
3 select one of a plurality of content items responsive to the performance
4 characteristics of the requesting client device.

1 32. The computer-readable medium of claim 31 wherein the plurality of content
2 items is ordered with respect to performance characteristics of client devices, and the
3 stored instructions further cause the processor to:
4 responsive to a client device having a highest performance characteristic,
5 select a first ordered content item.

1 33. The computer-readable medium of claim 31 wherein optimization constraints
2 are assigned to classes of client devices, and each class of client device has different
3 performance characteristics, and the stored instructions further cause the processor to:
4 determine the performance characteristics of the requesting client device;
5 determine a class of client device to which the requesting client device
6 belong responsive to the performance characteristics of the
7 requesting client device;
8 assign the requesting client device an optimization constraint responsive
9 to the determined class of client device to which the requesting
10 client device belongs; and

11 select a content item corresponding to the optimization constraint.

1 34. The computer-readable medium of claim 32 wherein optimization constraints
2 are associated with each content item, and the optimization constraints index classes of
3 client devices, wherein each class of client device has different performance
4 characteristics, and the stored instructions further cause the processor to:
5 assign the requesting client device an optimization constraint responsive
6 to the performance characteristics of the requesting client device;
7 and
8 select a content item responsive to the assigned optimization constraint.

1 35. The computer-readable medium of claim 34 wherein the stored instructions
2 further cause the processor to:
3 determine a connection type in use by the client device; and
4 associate an optimization constraint responsive to the connection type of
5 the client device.

1 36. A method of optimizing the delivery of content data from a web server to a
2 client device, wherein the content data is comprised of content items, optimization
3 constraints are associated with each content item, the optimization constraints index
4 classes of client devices, and wherein each class of client device has different
5 performance characteristics, the method comprising:
6 receiving a request for content data from the client device;
7 determining a class of device to which the requesting client device
8 belongs responsive to the performance characteristics of the
9 requesting client device;
10 assigning the requesting client device an optimization constraint
11 responsive to the determined class of client device;
12 selecting one of a plurality of content items responsive to the assigned
13 optimization constraint; and
14 transmitting the selected optional content to the client device.

1 37. In a system in which a content server provides content to client devices, an
2 optional content indicating system for demarcating optional content for transmission,
3 comprising:
4 a <OPT> tag, placed before a content item to indicate a beginning of
5 optional content;
6 a <DOPT> tag, placed before a content item which is an alternative for
7 transmission to the content item demarcated by the<OPT> tag;
8 and
9 a </OPT> tag, placed after a content item, to indicate an end of the
10 optional content.

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